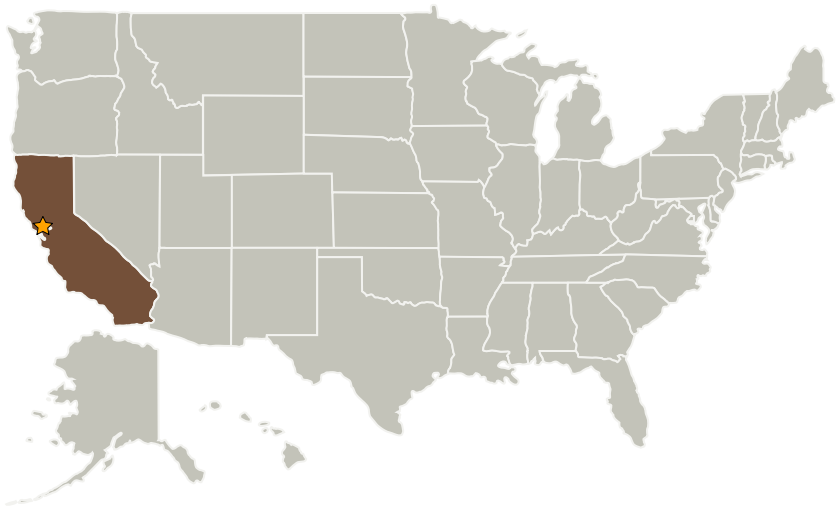
# Photonic Crystal Fiber-Based High Sensitivity Gas Sensor, Phase II

Completed Technology Project (2006 - 2008)

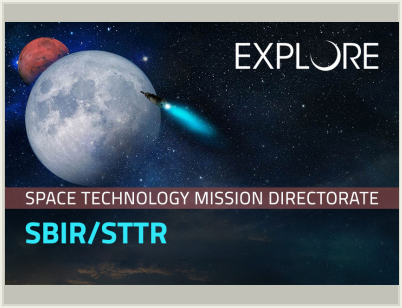
## Project Introduction

Los Gatos Research, Inc. proposes to develop a lightweight, compact, rugged, near and mid-infrared gas-sensing spectroscopy instrument to accurately measure the abundance of various gases on Mars and other extra-terrestrial bodies. These gases include methane, water vapor, carbon dioxide, and ammonia. This instrument will be a fully autonomous, stand-alone, remotely operable all fiber-based spectroscopy sensor capable of measuring gases in a Martian environment. The proposed prototype sensor includes the novel use of hollow photonic crystal fibers, which further enables accurate measurement of even small samples of gas. The project will also leverage Los Gatos Research's prior work developing rugged, autonomous gas sensors for extreme environments that NASA is currently using.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| ★Ames Research Center(ARC) | Lead Organization | NASA Center | Moffett Field, California |
| Los Gatos Research | Supporting Organization | Industry | Mountain View, California |

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## Table of Contents



## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Ames Research Center (ARC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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| Primary U.S. Work Locations |
| --- |
| California |

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX07 Exploration Destination Systems
  - TX07.1 In-Situ Resource Utilization
    - TX07.1.1 Destination Reconnaissance and Resource Assessment